State of California
The Resources Agency
Department of Fish and Game

DISEASE TESTING PROTOCOL
WILD TURKEY RELOCATION PROGRAMS
IN CALIFORNIA

December 26, 1997

Because of their widespread appeal as a game bird, wild turkeys (*Meleagris gallopavo*) are often translocated interstate as well as intrastate in California. The goal of these translocation projects is to establish or augment healthy naturally reproducing populations while minimizing the introduction of diseases pathogenic to resident wild turkey flocks, other upland game birds and domestic poultry.

Given the opportunity, free-ranging turkeys intermingle and breed with domestic commercial and barnyard flocks. Therefore, a healthy wild turkey flock can become diseased through this association with infected domestic fowl and subsequently become involved in relocation projects. Conversely, diseased wild turkeys can spread disease to domestic poultry flocks. In 1982, *Mycoplasma gallisepticum* was identified in two wild-type turkeys which had close contact with domestic turkeys in Tehama County (Jessup, et al., 1982). There have been several other instances in which *M. gallisepticum* was detected in free-ranging wild turkeys (Davidson, et al 1982; Adrian, 1984). All three cases involved wild turkeys which had close contact with domestic fowl.

State wildlife agencies are responsible for monitoring the health status of wild turkey populations and detecting disease among translocated stock. The potential for the inadvertent introduction of pathogens into healthy wild and domestic flocks and the liability for the Department being erroneously blamed for unrelated disease in domestic poultry must be considered in these translocation efforts. Historically, the Department of Fish & Game (CDFG) has tested translocated wildlife for diseases of concern by obtaining blood from each individual animal or herd testing a percentage of the animals involved. A portion of sera gathered is generally stored for future use in disease monitoring and for research purposes. Collection and analysis of serologic data allows us to make responsible data-driven decisions about population health and translocation for restoration programs.

The California Department of Food and Agriculture requires testing for *Mycoplasma gallisepticum* and *Salmonella pullorum* in all poultry imported into California. Testing for the remaining agents listed in this protocol is recommended by the Wild Turkey Section of the Wildlife Disease Association and does not require any additional effort as far as trapping and releasing wild turkeys are considered.

The California Department of Fish and Game, Wildlife Management Division, Upland Game Program is responsible for translocation of turkeys in California. A written capture plan from Upland Game personnel should be made available to all participants including the Wildlife Investigations Lab (WIL) in advance to avoid confusion during the translocation effort. The capture plan allows for coordination of capture personnel, sample collection and testing, transportation and the subsequent timely release of captured birds. This plan should contain the arrangements made, listing dates, personnel names, phone numbers and affiliations. A complete itinerary should include tentative dates of capture efforts (and backup dates), mode of

transportation, transport schedule, and release. Names of contact persons and their phone numbers are invaluable for minimizing confusion when last minute changes of plans occur. Telephone contact between project coordinators and veterinarians from the source location and WIL personnel prior to translocation efforts is essential to coordinate the receipt of a health certificate and the laboratory testing of serum specimens, and to expedite the timely reporting of laboratory results without unnecessarily delaying the release of birds at their destination.

The following sections outline the Wildlife Investigations Lab disease testing protocol for translocation of wild turkeys from out of state and within California.

I. INTERSTATE TRANSLOCATION

IMPORT

A. Notify the WIL a minimum of 72 hours prior to the proposed shipment to discuss the transportation schedule, including time of arrival. Any deviation from the following protocol can be discussed at that time.

B. Disease Monitoring Protocol

1) Health Certificate (visual exam, history) contains the following information:

Age & Sex
Place of origin (state, county, town, range)
Relocation site (state, county, town, range)
Identification (bands, tags)
Any signs of disease, external parasites, or trauma, etc., on individual captured birds or the remaining flock.

2) Collection of Samples

Collect 5 - 10 cc (a minimum of 3 cc is needed) blood from the right jugular vein and store in a red top tube. Mark the tube with the leg band number or other unique identifier, the sex, and the approximate age of the individual. Mark the transport box with the identification number for identification of test positive birds. Arrangements should be made prior to the capture effort with a veterinarian from the state-of-origin for collecting, processing, and submitting specimens to a laboratory. Unless otherwise arranged, lab analysis can be done while turkeys are in transit. If arrangements cannot be made by the state-of-origin, contact the WIL.

3) Laboratory Testing of Samples

Exposure (presence of antibodies) to the following diseases or disease agents will be tested and results reported **prior to the release at the destination:**

a. *Mycoplasma gallisepticum* (plate agglutination test positive birds are considered suspect and are re-tested using the hemagglutination inhibition test).
b. *Salmonella pullorum*

For surveillance purposes, serologic testing for the following infectious agents will be performed. Release can occur before these laboratory results are reported:

a. avian influenza
b. Newcastle's disease
c. avian hemorrhagic enteritis
d. *Salmonella typhimurium*
f. *Mycoplasma synoviae*
g. *Mycoplasma meleagridis*

4) **All wild turkeys translocated into California must have negative test results for *M. gallisepticum* and *S. pullorum* prior to release**. Prior arrangements for testing in the source state or for shipment to the WIL for testing at CVDLS will expedite the final release of the birds. Laboratory results can be reported to Dr. Ben Gonzales, Karen Jones, or Dr. Pam Swift at the Wildlife Investigations Laboratory via phone at (916) 358-2790 or FAX at (916) 358-2814. WIL personnel will call the appropriate field contact with the laboratory results to approve the release of the birds.

5. Generally, birds found seropositive to *M. gallisepticum* or *S. pullorum* will be submitted to the WIL for a complete diagnostic work-up. The disposition of multiple birds and/or flocks testing positive for *M. gallisepticum* or *S. pullorum* will be handled on a case by case basis.

Export

Entry requirements vary widely for other states. The wild turkey coordinator and WIL personnel will coordinate testing and shipping requirements with personnel from the receiving state.

II. INTRASTATE TRANSLOCATION

A. New Flocks (birds not previously tested or not tested within the past 5 years).

1) History and Examination
Age & Sex
Place of Origin (county, town, range)
Relocation Site (county, town, range)
Identification (bands, tags)
Any signs of disease, external parasites, trauma, etc., on individual captured birds or the remaining flock.

2) Collection of Samples
DFG personnel should contact WIL to make arrangements for sampling supplies, equipment and/or assistance well in advance of the planned capture. Collect 5 - 10 cc (minimum of 2 cc is needed) blood from the right jugular vein and store in red top tube from **ALL** individuals captured. Mark the tube with the leg band number or other unique identifier, the sex, and the approximate age of the individual. Mark the transport box with the identification number for identification of test positive birds. Prior arrangements for transporting the blood samples to

the WIL for testing will expedite the eventual release of the birds at their destination.

3) Laboratory Testing of Samples
Exposure (presence of antibodies) to the following diseases or disease agents will be tested and results reported **prior to the release at the destination:**

a. *Mycoplasma gallisepticum*
b. *Salmonella pullorum*

For surveillance purposes, serologic testing for the following infectious agents will be performed. Release can occur before these laboratory results are reported:

a. avian Influenza
b. Newcastle's Disease
c. avian hemorrhagic enteritis
d. *Salmonella typhimurium*
e. *Mycoplasma synoviae*
f. *Mycoplasma meleagridis*

4) Wild turkeys must have negative test results for *M. gallisepticum* and *S. pullorum* prior to release. Due to occasional cross reactions, positive plate agglutination results for *M. gallisepticum* will be confirmed using the hemagglutination inhibition test. Prior arrangements for transport or shipment to the WIL for testing at CVDLS will expedite the final release of the birds. Laboratory results can be reported to Dr. Ben Gonzales, Karen Jones, or Dr. Pam Swift at the Wildlife Investigations Laboratory via phone at (916) 358-2790 or FAX at (916) 358-2814. WIL personnel will call the appropriate field contact with the laboratory results to approve the release of the birds.

5. Generally, birds found seropositive to *M. gallisepticum* or *S. pullorum* will be submitted to the WIL for a complete diagnostic work-up. The disposition of multiple birds and/or flocks testing positive for *M. gallisepticum* or *S. pullorum* will be decided on a case by case basis.

6. The "New" or previously untested status of a turkey flock will be discussed and agreed upon by the WIL veterinarian and appropriate wildlife management personnel. After a statistically valid sample size has tested negative to *M. gallisepticum* and *S. pullorum*, the flock will be considered a "previously tested flock" (See section B) and birds can be selectively tested and released before receiving test results.

B. Previously Disease Tested Flock (flock tested within the past 5 years)

1) History and Examination
Age & Sex
Place of Origin (county, town, range)
Relocation Site (county, town, range)

Identification (bands, tags)
Signs of disease, external parasites, trauma, etc. on individual captured birds or the remaining flock

2) Collection of Samples
DFG regional personnel should contact WIL to make arrangements for sampling supplies and/or assistance well in advance of capture. Collect 5 - 10 cc (minimum of 2 cc is needed) blood from the the right jugular vein of **20% of captured individuals** and store in red top tube. Mark the tube with the leg band number or other unique identifier, the sex, and the approximate age of the individual. Blood can be transported to the WIL or centrifuged and serum separated from the red blood cell fraction and sent to the WIL within a few days for testing.

3) Laboratory Testing of Samples
Serum should be submitted to WIL in a timely fashion for disease testing and long-term storage in the lab's serum bank. Exposure to the following diseases will be determined:

a. avian influenza
b. Newcastle's disease
c. *Salmonella pullorum*
d. *Salmonella typhimurium*
e. *Mycoplasma gallisepticum*
f. *Mycoplasma synoviae*
g. *Mycoplasma meleagridis*
h. hemorrhagic enteritis

5) For previously tested populations, if there is no apparent clinical disease in the flock, birds may be released prior to receiving lab results. The release of these birds should be discussed in advance with Wildlife Investigations Laboratory personnel.

6) Flocks or populations with any individuals testing positive will revert to "New" or "previously untested" status. All birds from this flock will subsequently have to be tested before translocation. Subsequent translocation of birds from sero-positive flocks should be avoided.

Any questions or comments concerning this protocol should be addressed to:
Dr. Ben J. Gonzales
California Department of Fish and Game
Wildlife Investigations Laboratory
1701 Nimbus Road, Suite D
Rancho Cordova, California 95670
(916) 358-1464 (Voice)
(916) 358-2814